

## SEQUENCE LISTING

<110> Min, Wang  
Liu, Yingmei

<120> THIOREDOXIN MUTANTS AND USES THEREOF

<130> 21108.0021U2

<140> 10/523,343

<141>

<150> PCT/US03/22847

<151> 2002-07-02

<150> 60/401,073

<151> 2002-09-02

<160> 58

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 105

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 1

Met	Val	Lys	Gln	Ile	Glu	Ser	Lys	Thr	Ala	Phe	Gln	Glu	Ala	Leu	Asp
1				5				10						15	
Ala	Ala	Gly	Asp	Lys	Leu	Val	Val	Val	Asp	Phe	Ser	Ala	Thr	Trp	Cys
		20					25					30			
Gly	Pro	Cys	Lys	Met	Ile	Lys	Pro	Phe	Phe	His	Ser	Leu	Ser	Glu	Lys
		35				40					45				
Tyr	Ser	Asn	Val	Ile	Phe	Leu	Glu	Val	Asp	Val	Asp	Asp	Cys	Gln	Asp
50				55				60							
Val	Ala	Ser	Glu	Cys	Glu	Val	Lys	Cys	Met	Pro	Thr	Phe	Gln	Phe	Phe
65				70				75					80		
Lys	Lys	Gly	Gln	Lys	Val	Gly	Glu	Phe	Ser	Gly	Ala	Asn	Lys	Glu	Lys
			85					90					95		
Leu	Glu	Ala	Thr	Ile	Asn	Glu	Leu	Val							
			100				105								

<210> 2

<211> 105

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =

synthetic construct

<400> 2

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Met Val Lys Gln Ile Glu Ser Lys Thr Ala Phe Gln Glu Ala Leu Asp
 1             5             10             15
Ala Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Ser
      20             25             30
Gly Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys
      35             40             45
Tyr Ser Asn Val Ile Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp
      50             55             60

Val Ala Ser Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe
65             70             75             80
Lys Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys
      85             90             95
Leu Glu Ala Thr Ile Asn Glu Leu Val
      100             105

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<210> 3

<211> 105

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 3

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Met Val Lys Gln Ile Glu Ser Lys Thr Ala Phe Gln Glu Ala Leu Asp
 1             5             10             15
Ala Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys
      20             25             30
Gly Pro Ser Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys
      35             40             45
Tyr Ser Asn Val Ile Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp
      50             55             60
Val Ala Ser Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe
65             70             75             80
Lys Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys
      85             90             95
Leu Glu Ala Thr Ile Asn Glu Leu Val
      100             105

```

<210> 4

<211> 318

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 4

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atggtgaagc agatcgagag caagactgct tttcaggaag ccttggacgc tgcaggtgat      60
aaacttgtag tagttgactt ctcagccacg tgggtgtgggc cttgcaaaat gatcaagcct      120

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ttcttttcatt	ccctctctga	aaagtattcc	aacgtgatat	tccttgaagt	agatgtggat	180
gactgtcagg	atgttgcttc	agagtgtgaa	gtcaaataca	tgccaacatt	ccagtttttt	240
aagaagggac	aaaaggtggg	tgaattttct	ggagccaata	aggaaaagct	tgaagccacc	300
attaatgaat	tagtctaa					318

&lt;210&gt; 5

&lt;211&gt; 318

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 5

atggtgaagc	agatcgagag	caagactgct	tttcaggaag	ccttggacgc	tgcaggtgat	60
aaacttgtag	tagttgactt	ctcagccacg	tggcgtgggc	cttgcaaaat	gatcaagcct	120
ttcttttcatt	ccctctctga	aaagtattcc	aacgtgatat	tccttgaagt	agatgtggat	180
gactgtcagg	atgttgcttc	agagtgtgaa	gtcaaataca	tgccaacatt	ccagtttttt	240
aagaagggac	aaaaggtggg	tgaattttct	ggagccaata	aggaaaagct	tgaagccacc	300
attaatgaat	tagtctaa					318

&lt;210&gt; 6

&lt;211&gt; 318

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 6

atggtgaagc	agatcgagag	caagactgct	tttcaggaag	ccttggacgc	tgcaggtgat	60
aaacttgtag	tagttgactt	ctcagccacg	tgggtgtgggc	ctcgcaaaat	gatcaagcct	120
ttcttttcatt	ccctctctga	aaagtattcc	aacgtgatat	tccttgaagt	agatgtggat	180
gactgtcagg	atgttgcttc	agagtgtgaa	gtcaaataca	tgccaacatt	ccagtttttt	240
aagaagggac	aaaaggtggg	tgaattttct	ggagccaata	aggaaaagct	tgaagccacc	300
attaatgaat	tagtctaa					318

&lt;210&gt; 7

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 7

aagcttatgg	tgaagcagat	cgag	24
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&lt;210&gt; 8

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 8

ctcgagttag actaattcat taat

24

&lt;210&gt; 9

&lt;211&gt; 165

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 9

Met	Ala	Gln	Arg	Leu	Leu	Leu	Arg	Arg	Phe	Leu	Ala	Ser	Val	Ile	Ser
1				5					10					15	
Arg	Lys	Pro	Ser	Gln	Gly	Gln	Trp	Pro	Pro	Leu	Thr	Ser	Arg	Ala	Leu
			20					25					30		
Gln	Thr	Pro	Gln	Cys	Ser	Pro	Gly	Gly	Leu	Thr	Val	Thr	Pro	Asn	Pro
		35					40					45			
Ala	Arg	Thr	Ile	Tyr	Thr	Thr	Arg	Ile	Ser	Leu	Thr	Thr	Phe	Asn	Ile
	50					55					60				
Gln	Asp	Gly	Pro	Asp	Phe	Gln	Asp	Arg	Val	Val	Asn	Ser	Glu	Thr	Pro
65				70					75					80	
Val	Val	Val	Asp	Phe	His	Ala	Gln	Trp	Cys	Gly	Pro	Cys	Lys	Ile	Leu
			85					90					95		
Gly	Pro	Arg	Leu	Glu	Met	Val	Ala	Lys	Gln	His	Gly	Lys	Val	Val	Met
		100					105						110		
Ala	Lys	Val	Asp	Ile	Asp	Asp	His	Thr	Asp	Leu	Ala	Ile	Glu	Tyr	Glu
	115					120						125			
Val	Ser	Ala	Val	Pro	Thr	Val	Leu	Ala	Met	Lys	Asn	Gly	Asp	Val	Val
	130					135					140				
Asp	Lys	Phe	Val	Gly	Ile	Lys	Asp	Glu	Asp	Gln	Leu	Glu	Ala	Phe	Leu
145					150					155					160
Lys	Lys	Leu	Ile	Gly											
				165											

&lt;210&gt; 10

&lt;211&gt; 165

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 10

Met	Ala	Gln	Arg	Leu	Leu	Leu	Arg	Arg	Phe	Leu	Ala	Ser	Val	Ile	Ser
1				5					10					15	
Arg	Lys	Pro	Ser	Gln	Gly	Gln	Trp	Pro	Pro	Leu	Thr	Ser	Arg	Ala	Leu
			20					25					30		
Gln	Thr	Pro	Gln	Cys	Ser	Pro	Gly	Gly	Leu	Thr	Val	Thr	Pro	Asn	Pro

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      35              40              45
Ala Arg Thr Ile Tyr Thr Thr Arg Ile Ser Leu Thr Thr Phe Asn Ile
   50              55              60
Gln Asp Gly Pro Asp Phe Gln Asp Arg Val Val Asn Ser Glu Thr Pro
 65              70              75              80
Val Val Val Asp Phe His Ala Gln Trp Ser Gly Pro Cys Lys Ile Leu
      85              90              95
Gly Pro Arg Leu Glu Met Val Ala Lys Gln His Gly Lys Val Val Met
      100             105             110
Ala Lys Val Asp Ile Asp Asp His Thr Asp Leu Ala Ile Glu Tyr Glu
      115             120             125
Val Ser Ala Val Pro Thr Val Leu Ala Met Lys Asn Gly Asp Val Val
      130             135             140
Asp Lys Phe Val Gly Ile Lys Asp Glu Asp Gln Leu Glu Ala Phe Leu
 145             150             155             160
Lys Lys Leu Ile Gly
                  165

```

&lt;210&gt; 11

&lt;211&gt; 165

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 11

```

Met Ala Gln Arg Leu Leu Arg Arg Phe Leu Ala Ser Val Ile Ser
 1              5              10              15
Arg Lys Pro Ser Gln Gly Gln Trp Pro Pro Leu Thr Ser Arg Ala Leu
      20              25              30
Gln Thr Pro Gln Cys Ser Pro Gly Gly Leu Thr Val Thr Pro Asn Pro
      35              40              45
Ala Arg Thr Ile Tyr Thr Thr Arg Ile Ser Leu Thr Thr Phe Asn Ile
   50              55              60
Gln Asp Gly Pro Asp Phe Gln Asp Arg Val Val Asn Ser Glu Thr Pro
 65              70              75              80
Val Val Val Asp Phe His Ala Gln Trp Cys Gly Pro Ser Lys Ile Leu
      85              90              95
Gly Pro Arg Leu Glu Met Val Ala Lys Gln His Gly Lys Val Val Met
      100             105             110
Ala Lys Val Asp Ile Asp Asp His Thr Asp Leu Ala Ile Glu Tyr Glu
      115             120             125
Val Ser Ala Val Pro Thr Val Leu Ala Met Lys Asn Gly Asp Val Val
      130             135             140
Asp Lys Phe Val Gly Ile Lys Asp Glu Asp Gln Leu Glu Ala Phe Leu
 145             150             155             160
Lys Lys Leu Ile Gly
                  165

```

&lt;210&gt; 12

&lt;211&gt; 502

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

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&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 12

atggctcagc	gacttcttct	gaggagggttc	ctggcctctg	tcatctccag	gaagccctct	60
cagggtcagt	ggccaccct	cacttccaga	gccctgcaga	ccccacaatg	cagtcctggg	120
ggcctgactg	taacacccaa	cccagcccgg	acaatataca	ccacgaggat	ctccttgaca	180
acctttaata	tccaggatgg	acctgacttt	caagaccgag	tggccaacag	tgagacacca	240
gtggttgagg	atttccacgc	acagtgggtg	ggaccctgca	agatcctggg	gccgagggtta	300
gagaagatgg	tggccaagca	gcacgggaag	gtggtgatgg	ccaaggtgga	tattgatgac	360
cacacagacc	tcgccattga	gtatgagggtg	tcagcgggtgc	ccactgtgct	ggccatgaag	420
aatggggacg	tgggtggacaa	gtttgtgggc	atcaaggatg	aggatcagtt	ggaggccttc	480
ctgaagaagc	tgattggctg	ac				502

&lt;210&gt; 13

&lt;211&gt; 502

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 13

atggctcagc	gacttcttct	gaggagggttc	ctggcctctg	tcatctccag	gaagccctct	60
cagggtcagt	ggccaccct	cacttccaga	gccctgcaga	ccccacaatg	cagtcctggg	120
ggcctgactg	taacacccaa	cccagcccgg	acaatataca	ccacgaggat	ctccttgaca	180
acctttaata	tccaggatgg	acctgacttt	caagaccgag	tggccaacag	tgagacacca	240
gtggttgagg	atttccacgc	acagtggagt	ggaccctgca	agatcctggg	gccgagggtta	300
gagaagatgg	tggccaagca	gcacgggaag	gtggtgatgg	ccaaggtgga	tattgatgac	360
cacacagacc	tcgccattga	gtatgagggtg	tcagcgggtgc	ccactgtgct	ggccatgaag	420
aatggggacg	tgggtggacaa	gtttgtgggc	atcaaggatg	aggatcagtt	ggaggccttc	480
ctgaagaagc	tgattggctg	ac				502

&lt;210&gt; 14

&lt;211&gt; 502

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 14

atggctcagc	gacttcttct	gaggagggttc	ctggcctctg	tcatctccag	gaagccctct	60
cagggtcagt	ggccaccct	cacttccaga	gccctgcaga	ccccacaatg	cagtcctggg	120
ggcctgactg	taacacccaa	cccagcccgg	acaatataca	ccacgaggat	ctccttgaca	180
acctttaata	tccaggatgg	acctgacttt	caagaccgag	tggccaacag	tgagacacca	240
gtggttgagg	atttccacgc	acagtgggtg	ggaccagca	agatcctggg	gccgagggtta	300
gagaagatgg	tggccaagca	gcacgggaag	gtggtgatgg	ccaaggtgga	tattgatgac	360
cacacagacc	tcgccattga	gtatgagggtg	tcagcgggtgc	ccactgtgct	ggccatgaag	420
aatggggacg	tgggtggacaa	gtttgtgggc	atcaaggatg	aggatcagtt	ggaggccttc	480
ctgaagaagc	tgattggctg	ac				502

&lt;210&gt; 15

<211> 4  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct  
  
<400> 15  
Cys Gly Pro Cys  
1  
  
<210> 16  
<211> 4  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct  
  
<221> VARIANT  
<222> 1  
<223> Xaa = any amino acid except cys  
  
<400> 16  
Xaa Gly Pro Cys  
1  
  
<210> 17  
<211> 4  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct  
  
<221> VARIANT  
<222> 4  
<223> Xaa = any amino acid except cys  
  
<400> 17  
Cys Gly Pro Xaa  
1  
  
<210> 18  
<211> 105  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct  
  
<400> 18

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Met Val Lys Gln Ile Glu Ser Lys Thr Ala Phe Gln Glu Ala Leu Asp
 1           5           10           15
Ala Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Ser
          20           25           30
Gly Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys
          35           40           45
Tyr Ser Asn Val Ile Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp
          50           55           60
Val Ala Ser Glu Ser Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe
65           70           75           80
Lys Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys
          85           90           95
Leu Glu Ala Thr Ile Asn Glu Leu Val
          100           105

```

&lt;210&gt; 19

&lt;211&gt; 105

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 19

```

Met Val Lys Gln Ile Glu Ser Lys Thr Ala Phe Gln Glu Ala Leu Asp
 1           5           10           15
Ala Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys
          20           25           30
Gly Pro Ser Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys
          35           40           45
Tyr Ser Asn Val Ile Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp
          50           55           60
Val Ala Ser Glu Ser Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe
65           70           75           80
Lys Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys
          85           90           95
Leu Glu Ala Thr Ile Asn Glu Leu Val
          100           105

```

&lt;210&gt; 20

&lt;211&gt; 40

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 20

gaagcaggcc caggcagagc ggaaagctgg gaagaggcag

40

&lt;210&gt; 21

&lt;211&gt; 5

&lt;212&gt; PRT



<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 21

Thr Glu Arg Lys Ser  
1 5

<210> 22

<211> 19

<212> RNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =  
synthetic construct

<221> misc\_RNA

<223> double stranded

<400> 22

gccuuucuuu cauucccuc

19

<210> 23

<211> 19

<212> RNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =  
synthetic construct

<221> misc\_RNA

<223> double stranded

<400> 23

ugcaguccug guggccuga

19

<210> 24

<211> 19

<212> RNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =  
synthetic construct

<221> misc\_RNA

<223> double stranded

<400> 24

cgaagcgagc caagggcaa

19

<210> 25

<211> 73  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 25  
 ctctcgatct gcttcacccat cttggctgga agcttgccgc taagatgggtg aagcagattg 60  
 agagtaattt ttt 73

<210> 26  
 <211> 73  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 26  
 actaattcat taatgggtggc ttcaagctga agcttgagct tgaggctact attaataaat 60  
 tggctctattt ttt 73

<210> 27  
 <211> 73  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 27  
 cccacaccac gtggctgaga agtcaactga agcttgagtt ggcttctcag tcgcgtgggtg 60  
 tgggtctttt ttt 73

<210> 28  
 <211> 73  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 28  
 tcttgctctc gatctgcttc accatcttga agcttgagga tgggtgaagcg gatcgggagc 60  
 aggactgttt ttt 73

<210> 29  
 <211> 79  
 <212> DNA  
 <213> Artificial Sequence

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&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 29

gatcaaaaaa ttactctcaa tctgcttcac catcttagcc gcaagcttcc agccaagatg	60
gtgaagcaga tcgagagcg	79

&lt;210&gt; 30

&lt;211&gt; 79

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 30

gatcaaaaaa tagaccaatt cattaatagt agcctcaagc tcaagcttca gcttgaagcc	60
accattaatg aattagtcg	79

&lt;210&gt; 31

&lt;211&gt; 79

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 31

gatcaaaaaa agaccacac cacgcgactg agaagccaac tcaagcttca gttgacttct	60
cagccacgtg gtgtgggcg	79

&lt;210&gt; 32

&lt;211&gt; 79

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 32

gatcaaaaaa cagtcctgct cccgatccgc ttcaccatcc tcaagcttca agatggtgaa	60
gcagatcgag agcaagacg	79

&lt;210&gt; 33

&lt;211&gt; 73

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

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<400> 33  
 caatgcgagc ggagggatgc acagcctaga agcttggtggg ttgtgcatct ctccgttcgc 60  
 attgcagttt ttt 73

<210> 34  
 <211> 73  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 34  
 cttcttcagg aaggcctcca actgatccga agcttgggat tagttggagg ctttcttgga 60  
 ggagctgttt ttt 73

<210> 35  
 <211> 73  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 35  
 tgtatattgt ccgggctggg ttgggtgtga agcttgatac ccagcccagt ccggataata 60  
 tacaccattt ttt 73

<210> 36  
 <211> 79  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 36  
 gatcaaaaaa ctgcaatgcg aacggagaga tgcacaaccc acaagcttct aggctgtgca 60  
 tccctccgct cgcattgcg 79

<210> 37  
 <211> 79  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 37  
 gatcaaaaaa cagctcctcc aagaaggcct ccaactaatc ccaagcttcg gatcagttgg 60  
 aggcttctct gaagaagcg 79

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<210> 38  
 <211> 79  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 38  
 gatcaaaaaa tgggtgtatat tatccggact gggctgggta tcaagcttca cacccaaccc 60  
 agcccgga atatacacg 79

<210> 39  
 <211> 73  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 39  
 cctccgtggc cgcacgctcg ccctctgcga agcttggttag ggggcgagcg tgcggtcacg 60  
 ggggcgcttt ttt 73

<210> 40  
 <211> 73  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 40  
 atagccttcc acagtgtgca cagcatccga agcttggggg gctgtgtacg ctgtggaagg 60  
 ctattatttt ttt 73

<210> 41  
 <211> 73  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 41  
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 ttgatagttt ttt 73

<210> 42  
 <211> 74  
 <212> DNA  
 <213> Artificial Sequence

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&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 42

dgtggcagct ggtgctctc gccctcgccg aagcttgggc gggggcgagg ggcaccggct 60  
gctaccgctt tttt 74

&lt;210&gt; 43

&lt;211&gt; 73

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 43

gcaaggatat actcctgaga tattctgcga agcttggttag gatgtctcag gagtatatcc 60  
ttgccggttt ttt 73

&lt;210&gt; 44

&lt;211&gt; 73

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 44

ctcggggctg ctccgcgccc gccgggctga agcttgagcc tgggtgggcgt ggagcggccc 60  
cgagctgttt ttt 73

&lt;210&gt; 45

&lt;211&gt; 73

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 45

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ggttcattt ttt 73

&lt;210&gt; 46

&lt;211&gt; 73

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

## ATTORNEY DOCKET NO. 21108.0021U2

<400> 46  
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 ctgatggttt ttt 73

<210> 47  
 <211> 73  
 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence:/note =  
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<400> 47  
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 cattcaattt ttt 73

<210> 48  
 <211> 73  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 48  
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 ggcgtggttt ttt 73

<210> 49  
 <211> 79  
 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 49  
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 gcgtgcggcc acggaggcg 79

<210> 50  
 <211> 79  
 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 50  
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 acactgtgga aggctatcg 79

<210> 51  
 <211> 79  
 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence:/note =  
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<400> 51  
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<210> 52  
 <211> 79  
 <212> DNA  
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<220>  
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<400> 52  
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<210> 53  
 <211> 79  
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<220>  
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<400> 53  
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<210> 54  
 <211> 79  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 54  
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<210> 55  
 <211> 79  
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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 55

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ccattaccat cctggttcg 79

<210> 56

<211> 79

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 56

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ttggcgggg cagccgacg 79

<210> 57

<211> 79

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 57

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accacatgag agtcattcg 79

<210> 58

<211> 79

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 58

gatcaaaaaa ccacgccgcc gcctcccctc cgacgcccc tcaagcttca gagggcgccg 60  
gagaggaggc ggcggcgcg 79